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ABSTRACT

This paper focuses on in-service teacher professional development. The purpose of this paper is to: reexamine the definitions and characteristics that are often associated with the community of practice metaphor; clarify that this metaphor is a theoretical tool for educational researchers to make sense of interactions that take place in educational settings; and use the community of practice metaphor as a theoretical lens to reflect on interactions that took place at a rural Midwestern school district that was involved in a teacher professional development program. The paper concludes with suggestions on how to use community of practice as an instruction design tool for supporting and enhancing organizational learning. The data presented in this paper was extracted from a larger multiple case study that took place in 2 rural Midwestern school districts during August 1998 to May 2000. (Contains 18 references.) (Author/AEF)

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# Community of Practice: What is it, and how can we use this metaphor for teacher professional development?

Lisa C. Yamagata-Lynch
*University of Utah*

ED 470 198

**Abstract**

*In this paper I provide the reader with the definitions and characteristics that are often associated with the community of practice metaphor. Then I propose that community of practice is an appropriate tool for descriptive research or improving the interactions that take place in a community, but not necessarily an appropriate instructional tool for designing and developing learning communities in schools. I demonstrate this by reporting on findings from a case study of a teacher professional development program for technology curriculum integration*

## Introduction

In the past decade community of practice has become a popular term in both educational and business settings. Many of its implications are in alignment with situated learning theories, sociocultural learning theories, and organizational learning theories. Community of practice as a metaphor provides researchers with a theoretical lens for explaining why members of a community do what they do in everyday settings, and how community members define practices and engage in identity formation. The notion of community of practice provided the educational research community a method for explicating cultural knowledge that is often times a tacit set of rules and rituals that function as a lens through which members of a community view and interpret the world and give order, significance and meaning to their experiences (Maynard, 2001). The endorsement that community of practice has won in the field of educational research represents the ideological shift that occurred during the late 1980s where researchers began to express their interest in examining learning in everyday settings rather than school settings (see Brown, Collins, & Duguid, 1989; Lave, 1988; Resnick, 1987; Rogoff, 1990).

Consequently, there has been a plethora of research surrounding community of practice in both educational and business settings. Many of these efforts have been based on research using ethnographic methods. The outcomes of these ethnographic studies have helped identify the characteristics and mechanisms of community of practice especially how it influences organizational learning and individual learning. Thus within educational research community of practice has become an interesting and useful metaphor for describing and understanding organizational learning. However, for the community of practice metaphor to mature as a research and development framework in educational settings, we need more discussions surrounding how it can be used as a metaphor for improving preservice and inservice teacher education. This manuscript will specifically focus on inservice teacher professional development.

The charge of this manuscript is to: (a) reexamine the definitions and characteristics that are often associated with the community of practice metaphor; (b) clarify that this metaphor is a theoretical tool for educational researchers make sense of interactions that take place in educational settings; and (c) use the community of practice metaphor as a theoretical lens to reflect on interactions that took place at a rural Midwestern school district that was involved in a teacher professional development program. I will conclude with suggestions on how to use community of practice as an instructional deign tool for supporting and enhancing organizational learning. The data presented here has been extracted as a portion of a larger multiple case study that took place in two rural Midwestern school districts during August 1998 to May 2000.

## Literature Review

Community of practice is a term popularized by Lave and Wenger (1991) when they examined the legitimate peripheral participation of apprentices in professional communities. They claimed that apprentices of a community of practice are given legitimate roles within the community, and their actions have a direct consequence for the entire community. As an apprentice gradually appropriates the skills that are necessary for her to become a more skillful member of the community, she is assigned legitimate tasks that have greater consequences. Within this theoretical framework, communities of practice consist of groups of individuals with common goals who are engaged in joint activities in a common setting. The way that work related activities are exercised in a community of

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practice affects the way that its members view the world, and it also defines the legitimacy of a task practiced in the community. Lave and Wenger (1991) define the term as follows:

> A community of practice is a set of relations among persons, activity, and world, over time and in relation with other tangential and overlapping communities of practice. A community of practice is an intrinsic condition for the existence of knowledge, not least because it provides the interpretive support necessary for making sense of its heritage. Thus, participation in the cultural practice in which any knowledge exits is an epistemological principle of learning. (p. 98)

Additionally, the history and experiences shared in a community of practice defines what constitutes competence within that community (Wenger, 2000). In other words, the shared experiences within a community define the legitimacy of practices that are carried out on an everyday basis.

Interestingly, the focus of Lave and Wenger's work was not to identify and define the notion of a community of practice. They focused their work on illuminating the setting, processes, and individuals involved in professional communities, such as the Yucatec midwives and naval quartermasters. Lave and Wenger introduced the notion that community members consist of newcomers and old-timers, and the learning activities involved for a newcomer to transition to an old-timer is extraordinarily situated in the everyday practices of the community contrary to learning experiences that K-16 learners face in schools. Lave and Wenger used community of practice as a descriptive metaphor in their anthropological studies involving legitimate peripheral participation to portray how a community makes meaning of the world and how the world and individuals' identities are defined by the history and practices shared by the community members. Lave and Wenger never made any claims from the implications of their study about how to constitute community of practices in educational settings (Palincsar, Magnusson, Marano, Ford, & Brown, 1998).

Wenger (1998) further examined the concept of community of practice. In his 1998 work he provided definitions of community, practice, and identity formation within a community. He reported that community practice is an integral part of our daily lives, and it is everywhere. Communities of practice do not have a name or a membership card, but members of a community of practice identify themselves as a "we" defined by the joint participation for attaining a common goal. This notion of "we" draws boundaries between multiple communities of practices, and these boundaries can act as an important agent for learning systems because they connect communities and offer opportunities for learning (Wenger, 2000). Community members that cross over to another community of practice are exposed to practices and artifacts that are new to them. These new experiences can allow individuals to engage in activities that they never did prior to the boundary crossing. Then these individuals can bring back their newly negotiated understandings to their original community by becoming the brokers of the new practices (Wenger, 1998).

Wenger (1998) cautions that community of practice is not a new solution to existing organizational problem, and "they are not a design fad, a new kind of organizational unit or pedagogical device to be implemented" (p. 228). Wenger further explains that:

> Communities of practice are about content—about learning as a living experience of negotiating meaning—not about form. In this sense, they cannot be legislated into existence or defined by decree. They can be recognized, supported, encouraged, and nurtured, but they are not reified, designable units. (p.229)

Finally, Wenger (2000) cautions researchers not to romanticize the notion of community of practice. At the same time that a community of practice supports learning, it can also be the mechanism that enables individuals to learn the practice of not learning. Therefore, a community of practice is not necessarily always advantageous for human everyday practices.

The field of educational research quickly adopted community of practice as a conceptual tool for both research and instructional design. As a research tool community of practice has been used to identify individual identity formations and interindividual interactions that take place within a classroom setting or a broader educational setting (see Matusov, 1999, 2001; Maynard, 2001). As an instructional design tool community of practice has been introduced as an architectural guideline of instructional environments as used in Barab and Duffy (2000) and in Palincsar et al. (1998). However, in these instances the authors stumbled into situations where they realized that community of practice could not be used as a pedagogical device for designing communities in K-16 education or in teacher professional development. For example, Barab and Duffy used community of practice as the overarching metaphorical notion for providing K-16 students a highly situated and authentic learning environment. Thus, they point out the shortcomings of using community of practice as an architectural tool of learning environments because the experiences learners encounter in school settings are alienated from the real problems that community of practices encounter. To alleviate this shortcoming Barab and Duffy suggest instructional designers to use the notion of practice fields (Senge, 1994) in K-16 educational settings.

Palincsar et al. (1998) used community of practice as a design tool for tracking the birth and growth of a community within a teacher professional development program that focused on improving classroom practices of K-5 teachers specifically in the area of science education. However, the above authors point out themselves that it is difficult to use community of practice as an instructional design tool for professional development because within the everyday work life of teachers there is a lack of a commonly shared mission or a joint enterprise (Hargreaves, 1993), and teachers lead individualistic and isolated work lives (Little, 1990), where they do not necessarily feel as they are a member of a community of practice. Ironically the attempts for using community of practice as an instructional design tool for architecting educational environments have reinforced Wenger's (1998) position that community of practice is not a designable unit. Instead, community of practice is a useful tool for identifying and supporting community efforts in order to improve and assist the educational efforts of a group of individuals.

## This Study

### TICKIT

This study took place in the context of a teacher professional development program about technology curriculum integration. The program that the study participants were involved in was the Teacher Institute for Curriculum Knowledge about Integration of Technology (TICKIT). TICKIT is a university school partnership between five rural Indiana schools and Indiana University. Each year, in this program there are at least 25 teachers enrolled, and they are responsible of developing, implementing, and evaluating at least two lessons that integrate technology in their subject area. During their participation, TICKIT participants are provided support from Indiana University staff and their local schools for integrating technology into their everyday teaching activities and for becoming technology leaders in their schools. In exchange, upon completion of all projects required in TICKIT, teachers receive six graduate credit hours that can be used toward either a master's degree or for revalidating their Indiana teaching license.

## Methods

### Participants

The initial participants of this study were selected from (a) school districts that enrolled in TICKIT for two consecutive years during the 1998-1999 and 1999-2000 school year, and (b) school districts that provided support for participant teachers. The primary participants were individuals who were: (a) TICKIT 1998-1999 participants who were classroom teachers, and (b) TICKIT 1998-1999 participants who participated in the entire yearlong program. The secondary participants were non-TICKIT teachers, administrators, technology coordinators, or technology support staff. Anonymity of the study participants was maintained by the use of pseudonyms for individuals and school district names. For the purpose of this manuscript, I will present a portion of the entire data from the Hillsdale-Berkley School District. At the Hillsdale-Berkley School District there were four primary participants, including two eighth grade teachers, one sixth grade teacher, and one third grade teacher, and five secondary participants, including two teachers, one media specialist, one technology coordinator, and one technology support person.

### Researcher Role

The above participants and I were well acquainted with each other during this study because I was the TICKIT graduate assistant that maintained the website, conducted technology related workshops for participants, and provided any other assistance requested by the program coordinators or TICKIT participants. Therefore, there were moments during this study when I took the role of more than an outside observer. For example, when there were inservice technology sessions at the Hillsdale-Berkley school district, the teachers were very eager for me to participate, partly for my data collection purposes and partly so that I could help them with teacher training.

### Data Collection Methodology

In this research, naturalistic inquiry methodology (Lincoln & Guba, 1985) was used, where the data collection took place in a natural setting and there were no variables manipulated in anticipation of confirming a hypothesis. More specifically, I conducted a case study (Merriam, 1998; Stake, 1995). The data collection methods included document analysis, interviews, and classroom observations with 1998-1999 TICKIT participants, non-participating teachers, and school technology support staff.

### Trustworthiness

I attempted to maintain the trustworthiness of this qualitative study by: (a) prolonged engagement with the research site, (b) persistent observation, (c) triangulation, and (d) member checking. Although this research began after the TICKIT 1998-1999 program, I had close ties with the participants during TICKIT 1999-2000. Therefore, I had a total of two years of engagement with the research site.

### Data Presentation

#### School District Background

Hillsdale-Berkley School District is a rural Midwestern school system with minimal industry in the community. The district serves six schools (four elementary schools, one middle school, and one high school). Due to the rural environment in which the school is situated, it is isolated from many educational resources, such as public libraries and museums that could be available in more urban settings. The district's mission is to "encourage and direct the physical, mental and social growth of each student... so he can, to the best of his abilities, become a well adjusted, contributing member of our society" (Hillsdale-Berkley School District Technology Implementation Plan 1997-2001).

For the past five years the Technology Planning Committee, which is a district-wide committee, has been planning for the technology implementation plan. The mission of this committee is to "create, implement, evaluate and revise a long-range technology plan for learning that will move the students of the schools well into the 21st century" (Hillsdale-Berkley School District Technology Implementation Plan 1997-2001). The district acknowledges that electronic technology has become an integral part of the function of the community. Therefore, their goals state "learners and teachers will develop the skills necessary to effectively utilize technology ethically and creatively in serving both the individual and society" (Hillsdale-Berkley School District Technology Implementation Plan 1997-2001).

However, many of the technology related initiatives, such as applying to various state grants and implementing technology in the curriculum, have been efforts pursued by pockets of enthusiastic teachers rather than a movement led by district administrators and staff. The common practice for gaining grant money, at the Hillsdale-Berkley School District, works such that the school library media specialist finds grant applications that fit a single or several teachers' needs; then the teacher will apply for the grant individually or with the media specialist's help. Therefore, grant application preparations are considered as extra workload for teachers, and they usually spend time after school hours to write grants. When the teacher or groups of teachers gain the grant money, it is distributed for their classroom use and not necessarily for school-wide initiatives

#### Hillsdale-Berkley School District and TICKIT

At the Hillsdale-Berkley School District, prior to enrolling in TICKIT, there were several self-motivated teachers experimenting with the use of technology in their classrooms. These teachers were interested in using technology, because when the integration was successful, it oftentimes provided a rich learning environment for students, and students were motivated to learn in this technology rich environment. The school district did not have funds for providing teachers with technology in their classrooms; therefore, the technology enthusiastic teachers applied for small grants that allowed them to provide the hardware and software in their classrooms.

Hillsdale-Berkley teachers worked in interdisciplinary teams, but technology related activities were contained within the boundaries of the classroom. Consequently, teachers did not develop the practice of sharing physical resources such as equipment and software or sharing teaching related ideas and stories. Furthermore, teachers that were not comfortable in using technology in their classroom did not consider the enthusiastic teachers' efforts as curriculum development. They perceived activities related to technology curriculum integration to be a hobby-like activity.

For some teachers at the Hillsdale-Berkley School District, participating in TICKIT gave justifications for non-TICKIT participating teachers to acknowledge the TICKIT participants' efforts. By participating in TICKIT, the teachers' efforts in integrating technology into the curriculum and prioritizing them over other teaching responsibilities were well accepted by non-TICKIT teachers. Becoming participants of a university school partnership program gave renewed sense of credibility to the activities surrounding technology that the Hillsdale-Berkley TICKIT participants were engaging in. For example, during her interview Naomi, an eighth grade Language Arts teacher, commented that when she shared the projects she completed in TICKIT with her non-TICKIT participating colleagues on her team, the project was acknowledged as an important curriculum unit and not "Naomi's computer project:"

it's accepted better. It's not "oh...it's Naomi's computer project" now it's like "oh, their doing the WebQuest project." Which is a big difference…if it's my little project on the computer it's not valid. It's just that thing she does, but if it's a WebQuest, suddenly it's like part of the curriculum and they see educational value that they did not before. I think that changed the attitude a little bit. (Naomi, Primary Participant Interview, February 29, 2000)

This acknowledgement by non-TICKIT teachers, that the TICKIT participating teacher projects were part of the curriculum and not just a computer project, encouraged a change in attitude of the non-TICKIT teachers, and some became excited to participate in their schools' curriculum technology integration efforts.

At the end of the program, the Hillsdale-Berkley teachers felt that they gained new technology skills that made them feel more comfortable and confident in using various technologies in their classroom. With their newly gained confidence and technological skills, teachers at the Hillsdale-Berkley School District became eager to incorporate technology into their classroom. Deborah, an eighth grad Math teacher, commented on this in the following excerpt: "being comfortable of using the Internet … being able to create Web pages…did a lot to me in making me feel comfortable…and try to do things for my students…" (Deborah, Primary Participant Interview, March 8, 2000). Furthermore, Alice, a sixth grade Language Arts and Social Studies teacher, felt that her newly gained confidence energized her and made her eager to continue to work on integrating technology in her classrooms. She mentioned during her interview that: "I am always thinking about ways [to integrate technology in the curriculum], what can I do, what can I do" (Alice, Primary Participant Interview February 2000). However, Hillsdale-Berkley teachers realized that there was not enough equipment for them to use in their day-to-day teaching, especially in the Middle School.

With the new sense of confidence, new university connections, and camaraderie shared among TICKIT teachers at Hillsdale-Berkley, teachers became eager and excited to apply for new technology-related grants. As the non-TICKIT teachers at the district witnessed several of the TICKIT projects and found that the school was purchasing more equipment they became interested in using technology in their own classrooms. Some non-TICKIT teachers even chose to enlist themselves in TICKIT for the 1999-2000 year.

The TICKIT 1998-1999 teachers continued to influence their non-TICKIT participating colleagues by taking a leadership role during inservice teacher training sessions and by making themselves available for helping other teachers. Emma, the media specialist, commented how the five TICKIT participants from her school have been helpful to other teachers.

> They've been helpful in helping people design other things too, and getting their Web page going or you know, designing a WebQuest too, so they've been good resources people. (Emma, Secondary Participant Interview, April 16, 2000)

For example, during February 2000, Emma coordinated a two session series of after-school inservice programs for teachers at Hillsdale-Berkley Middle School on Web publishing. Henry, a third grade teacher who participated in TICKIT, was the instructor for the inservice session, and many of the participants of the session were TICKIT 1998-1999 teachers. I observed the second day of one of these sessions, where teachers brought in the curriculum they wanted to publish on the Web and worked on it while Henry and Emma assisted in answering questions.

The first day of the in-service, according to Emma, was a typical training session where Henry demonstrated how to use Netscape Communicator. The second session was designed for teachers to bring their recent Web publishing projects and use the inservice time as work time. The TICKIT participants other than Henry who were present at the inservice were helpful in answering other teachers' questions while they were working on their own projects as well.

**Discussion**

When examining the historical development at the Hillsdale-Berkley School District prior to TICKIT, teachers enthusiastic about using technology in the classroom had to isolate themselves from their day-to-day teaching colleagues if they wanted to develop and implement technology infused curriculum. Within the everyday practice of teaching at Hillsdale-Berkeley, curriculum technology integration was not acknowledged as a legitimate teaching related practice.

Teaching efforts surrounding technology use in the classrooms were perceived by other teachers as indulging in hobby-like activities that satisfied individual interests rather than meeting curriculum needs with pedagogical values. Additionally, indulging in such "illegitimate" practices were potentially threatening to a teacher's career because it could have discredited their teaching as a whole by other local teachers. Inevitably, the self-motivated teachers that were enthusiastic about integrating curriculum and technology had to isolate themselves

from the local boundaries of their teaching colleagues and choose not to share their ideas and stories regarding technology implementation with local colleagues.

While participating in TICKIT Hillsdale-Berkley teachers found other teachers interested in sharing and legitimizing the common goal of designing, developing, implementing, and evaluating new methods for using technology in the classroom that addressed curriculum and student needs. Based on the partnership build by becoming a TICKIT participant, these colleagues included teachers from their school district and outside of their school district, and university faculty. Here, the teachers from Hillsdale-Berkley found a new group of individuals to associate with while they excused themselves from their local colleagues. In this way, TICKIT introduced to them new peers for Hillsdale-Berkley TICKIT teachers to work together to develop technology-integrated lessons.

After TICKIT, once the Hillsdale-Berkley teachers attained their goal of a successful curriculum technology integration project, they became boundary brokers (Wenger, 1998) between the TICKIT community and their local community of teachers. After completing the program, TICKIT teachers from Hillsdale-Berkley brought to their local community new artifacts (i.e. successful curriculum technology projects) and stories surrounding those artifacts. These new artifacts and stories of TICKIT teachers acted as catalysts that encouraged other teachers to become involved in TICKIT for the following two school years.

Additionally after TICKIT, Hillsdale-Berkley teachers found a group of local teachers and technology staff who shared their vision for school-wide curriculum technology integration. These teachers wrote grants together to acquire funding that would support purchasing technology equipment and professional development activities for local teachers. Ordinarily, the community has great influence over shaping the everyday practices that teachers choose to engage in because the community defines the rules and division of labor associated with practices. However, as seen in the above example, community endorsement is not the sole predictor of success.

Innovations that are introduced to everyday practices of teachers, such as a professional development program, can change the perception of local practices, and legitimatize new teaching related practices that were formally illegitimate. For example, after TICKIT technology enthusiastic teachers in Hillsdale-Berkley no longer needed to isolate themselves from their local colleagues because the activities surrounding the use of technology in classrooms became legitimate. Therefore, TICKIT teachers did not need to belong to an outside group to attain their technology curriculum integration goals. They became a self-sustained group of teachers that shared a common goal and were acknowledged by many of their local colleagues as technology leaders in the district.

Through the above examination there are several transitions that can be identified. These transitions include the following: (a) the non-TICKIT teachers perception of TICKIT teachers' everyday efforts for integrating technology into the curriculum changed from a hobby-like illegitimate teaching practice to a legitimate curriculum development; (b) TICKIT teachers' perception of their own skills and confidence regarding technology use in the classroom changed from being mediocre and timid users of technology to skillful and bold users, and (c) the TICKIT teachers' identity changed from a closet technology user in the classroom to a technology leader in the district. The key artifact that became the catalyst for the above transitions was the TICKIT participating teachers' curriculum technology integration projects. These projects served the purpose of reified objects that helped institutionalizing and legitimizing new practices at the Hillsdale-Berkley school district.

**Conclusion**

In this manuscript I presented community of practice as a useful tool for examining interactions that take place in professional development settings in order to understand everyday practices within a teacher community and to identify what practices are perceived to be legitimate and what practices are not. Teacher professional development involves introducing and legitimizing new practices within the teaching community. In some cases, such as in this study, professional development programs can assist in nurturing and enhancing practices that are already practiced within a small group of teachers in a school district by introducing the non-practicing teachers to new artifacts that are reifications of legitimate pedagogical practices.

Using community of practice as a tool for examining local teaching practices within a school district can help universities, school districts, and teachers involved in a professional development program identify what are the accelerators and barriers of success for introducing new pedagogical practices. Once this is identified it is the task of the professional development program and its participants to leverage the local practices to identify methods for legitimizing new teaching related activities. Therefore, community of practice can be used as a theoretical lens for identifying, supporting, and strengthening practices that already exist in school districts. This will then assist school districts to develop robust and pedagogically sound educational practices.

In conclusion I suggest that in professional development settings universities, school districts, and teachers use community of practice as a metaphor for analyzing current practices and developing strategies for infusing new

practices to a school district. As the works of Barab and Duffy (2000) and Palincsar et al. (1998) suggest, there are limitations for using community of practice as guidelines for designing and developing new learning environments in educational settings. Therefore, in future research there is a need for examining the advantages and shortcomings of using community of practice as a tool for designing and developing educational environments.

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